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UNITED STATES DEPARTMENT OF ENERGY
OFFICE OF FOSSIL ENERGY
CARBON SEQUESTRATION PROGRAM
PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT
PUBLIC SCOPING MEETING
MAY 25, 2004

COPY

1 MR. LORENZI: All right. Just a few
2 minutes here. Good evening. The time is now
3 7:03 p.m. This meeting was arranged by the
4 Department of Energy as one part of a process to
5 obtain public participation in an effort to prepare a
6 detailed environmental analysis by the government --
7 an environmental impact statement -- for activities
8 associated with implementing the Department of
9 Energy's carbon sequestration research and
10 development program.

11 Input from the public during this
12 process will assist the U.S. Department of Energy in
13 identifying and prioritizing issues related to carbon
14 sequestration R&D, research and development,
15 evaluating potential impacts, the framework for
16 defining a program for future research -- refining a
17 program of future research, development, and testing
18 of technologies and methods for carbon sequestration.
19 This is the fourth of eight meetings planned at
20 various locations around the country.

21 The carbon sequestration activities
22 supported by the Department of Energy will help
23 achieve the goals of the Global Climate Change
24 Initiative as announced by the President in 2002.
25 That initiative will require two things with respect

1 to the Department of Energy's program. First is the
2 development of technology options with the potential
3 to reduce the carbon intensity of the U.S. economy,
4 and the second is to help establish the information
5 base needed by the year 2012 for effective carbon
6 sequestration decisions to balance economic growth
7 and investment in clean energy technologies.

8 The implementation of a carbon
9 sequestration program to achieve those goals provides
10 the essence of the basis for the Department of
11 Energy's decision to prepare an environmental impact
12 statement for the carbon sequestration program. Your
13 input and comments will be an important part of that
14 effort.

15 I want to thank you for your
16 participation tonight. My name is Lloyd Lorenzi, and
17 I'm from the Department of Energy's laboratory in
18 Pittsburgh, Pennsylvania. Mr. Scott Klara is here
19 tonight and will introduce himself.

20 MR. KLARA: I'm Scott Klara, also with
21 the Department of Energy.

22 MR. LORENZI: The logistics of this
23 meeting tonight will be a team of environmental
24 specialists led by Potomac-Hudson Engineering
25 Company. I would ask the team members who are

representing Potomac-Hudson to introduce themselves.

MR. JOHNSON: I'm Kevin Johnson with URS Corporation here to support the meetings as well as to prepare a programmatic environmental impact statement, as well.

MR. LORENZI: We also have a court reporter here tonight to prepare a transcript of this meeting, particularly of your comments, which will be used to document and identify the views from the public regarding the desired scope and content of the environmental analysis.

At the entrance to the meeting room we provided information regarding this meeting, including descriptions of the process to prepare an environmental impact statement, descriptions and of the Department of Energy's current activities and program plans related to carbon sequestration research and development, a registration sheet -- and I would encourage you to sign the form as an indication of your attendance at the meeting tonight. And finally and not leastly, we have provided a comment sheet on which you can submit written comments tonight or following the meeting to document for the record your observations or views regarding either the sequestration program of the Department of

1 Energy or the plans to prepare this environmental
2 impact statement. But tonight we want to hear your
3 oral comments on our effort to prepare the
4 environmental impact statement.

5 We will use those comments as well as
6 any other input obtained through the closing of the
7 comment period on June 25th to assist in preparing
8 that environmental analysis. Once completed, a draft
9 of the environmental analysis will be made available
10 for public review and comment and we will again come
11 to the areas of -- the same areas that we're having
12 the public meetings -- to review that draft for the
13 purpose of reviewing that draft EIS with the public.

14 Before we get to your comments
15 tonight, Scott Klara from the Department of Energy
16 will provide a summary of the carbon sequestration
17 activities and then you may make your comments.
18 Scott's presentation may be useful in formulating
19 your ideas for comments tonight, so I would encourage
20 you to pay attention to Scott's presentation.

21 MR. KLARA: Good evening, everyone.
22 Appreciate you taking your time out of your busy
23 schedule to be here with us this evening. As I
24 indicated, my name is Scott Klara. I am the
25 technology manager for the carbon sequestration

1 program. The carbon sequestration program is within
2 the Office of the Department of Energy and
3 specifically the Office of Fossil Energy, which is a
4 subdivision of the DOE.

5 What I plan to discuss today is to
6 provide an overview of what is carbon sequestration,
7 as least the way we think about it programmatically,
8 what are some of the issues related to our fossil
9 greenhouse gas implications, and the pathways to
10 stabilization. I'm then going to provide an overview
11 of the carbon sequestration program and discuss in a
12 little detail some specific initiatives that are
13 emerging from the program that could benefit from
14 this programmatic environmental impact statement.

15 First let's go to what we consider to
16 be carbon sequestration. Sequestration is what we
17 consider to be capture and storage of CO2 and other
18 greenhouse gases that would otherwise be emitted to
19 the atmosphere. There's several approaches to
20 capture these greenhouse gases. The first is at the
21 point of emission. An example of that would be
22 capturing it from a large source, like a power plant.
23 The second option would be to capture it from the
24 air. For example, forestation or de-forestation of
25 agriculture where we don't really know where the

1 source came from.

2 Many storage locations are being
3 investigated in our program. Some of the predominant
4 options are looking at underground reservoir
5 locations. Some examples would be oil and gas
6 reservoirs, deep saline formations which contain
7 briny saltwater, and coal sinks. Other options are
8 to look at natural processes for uptake of these
9 greenhouse gases. Some examples there are trees,
10 grasses, and soils. Some other options that are
11 being pursued but not yet considered feasible options
12 are to locate CO2 salt material and convert it to a
13 rock-like structure. You can also look at dissolving
14 into deep oceans. Right now we're in the
15 investigating phases of our R&D.

16 Going to the fossil energy situation,
17 what these chart shows is the fossil energy that the
18 energy sources in the United States -- and the
19 right-hand shows it for the world. And in both cases
20 it shows a strong reliance on fossil fuels. The
21 United States and the world rely both on about
22 86 percent of their energy needs for fossil fuels,
23 and you can see the splits for coal oil and natural
24 gas in those figures.

25 What this shows is a snapshot of the

1 United States scenario. Looking at the lower left
2 pie, it shows our scenario for the year 2002 at that
3 86 percent reliance on fossil fuels. What the upper
4 right-hand pie shows is a predicted forecast for the
5 year 2025.

6 There are a couple conclusions I would
7 like you to take away from this slide. The forecast
8 is showing that our reliance will stay at about an
9 86 percent level. However, what it's also showing is
10 a 40 percent increase -- potential increase in the
11 use of energy in the United States.

12 When you take fossil fuels, you burn
13 them, you get CO₂, which is a predominant greenhouse
14 gas. Looking at this forecast it shows that without
15 action, it looks like CO₂ would certainly rise, and
16 this forecast would show them rising at close to a 40
17 percent increase currently.

18 Let's now take a look at some fossil
19 and greenhouse gas indications. What this chart
20 shows is over a several hundred thousand year time
21 span -- the several hundred thousand years of data
22 primarily taken from ice cores and more recently from
23 direct measurement -- shows the temperature profile
24 over the last several hundred thousand years. The
25 top curve shows corresponding CO₂ concentration in

the atmosphere. A couple trends to see from this.

One is the temperature and CO2 over the last several hundred thousand years have been closely linked and correlated. Another thing to show from this plot is that there's a red line on this right-hand axis that goes from about 270 to 380. That's parts per million CO2. We know that approximately 150 years ago, that CO2 concentrations increased 30 percent. So, some of the potential indications are that CO2 concentration and temperature continue to be closely linked. Hence, some of the potential implications in temperature rise from the concentration of these greenhouse gases.

Taking a look at CO2 greenhouse contributors in the United States. What this pie shows is that over 80 percent of the greenhouse gas contributions in the United States come from CO2 from energy, the burning of fossil fuels primarily. It also shows another component there at 9 percent, which is methane. And these are fugitive methane emissions -- primarily emissions from land fuels, underground coal mines, and natural gas distribution systems.

The importance of this chart to our R&D program is that the bulk of our R&D program

1 focuses on mitigating CO2 emissions. We do have a
2 small part of our program that does focus on these
3 fugitive methane emissions.

4 This chart shows that all (inaudible).

5 I want to point your attention to the lower middle
6 pie here that shows distribution among the fossil
7 fuels. And you see both coal and natural gas each
8 contribute about 27 percent contribution to
9 greenhouse gas emissions, and oil is a very large
10 component there at 46 percent. Now I want to point
11 your attention to the upper right pie where it breaks
12 it down by sector. You see there that electricity
13 contributes close to 40 percent, 32 percent from the
14 transportation sector, and 30 percent from others.

15 The significance of this information
16 to our program is our program right now is focusing
17 on large source emitters. Hence, we're looking at
18 coal primarily as a coal-based power generation and
19 we're looking at electricity. Much of our R&D you'll
20 find is dedicated to greenhouse gas mitigation from
21 that fuel type in that sector.

22 This chart shows three high-level
23 options to deal with carbon management and greenhouse
24 gas management. Sometimes we refer to it as three
25 legs of a stool, three corners of a triangle. These

1 options are to reduce carbon intensity. Look at the
2 renewable sources of fuel and switching to lower
3 carbon-based fuels. The middle one is looking at
4 improved efficiency. You can do that both on the
5 demand and supply side. Supply side will be looking
6 at increasing efficiency in generating electricity,
7 for example. On the demand side, you will be looking
8 at increased efficiency in vehicles and appliances
9 and the like.

10 What we're going to talk about today
11 is this sequestering carbon. The message I want you
12 to take home with you from this slide is that all
13 options will be required. I will show you in a few
14 slides the magnitude of these emissions. There's not
15 one option that can handle all the emissions levels.
16 These options together can potentially form a
17 solution to this issue.

18 Within the administration we really
19 have two presidential initiatives that are driving
20 the program. The first is called a National Climate
21 Change Technology Mission announced by the President
22 in June of 2001. The importance of this initiative
23 was it was the first time within this administration
24 that a public statement was made on how to address
25 climate changes. Another thing that came out of that

1 administration is recognized technology solutions is
2 the way to go, and it also recognized carbon
3 sequestration is one of the key technology options.

4 The second initiative came on
5 Valentine's Day 2002 called the Global Climate Change
6 Initiative. The importance of this was the President
7 reiterated the significance of technology and
8 specifically carbon sequestration. It also put some
9 measurements in metrics on the United States for
10 reducing greenhouse gas emissions, and it provided a
11 metric of reducing greenhouse gas by 18 percent over
12 10 years between the period of 2002 to 2012. The
13 significance of that metric is our program is driven
14 and headed towards that kind of metric in the goals
15 of our program.

16 This chart is to show that there's
17 huge worldwide capacity related to sequestration.
18 This is a major reason why sequestration is such a
19 big point with relationship to greenhouse gases.
20 This chart shows that worldwide emissions are at
21 about 6.5, that lower right-hand bar that you can
22 barely see on the chart. On the left-hand side of
23 the chart you see some various sequestration options
24 that I mentioned other -- underground geologic
25 formations, plants and agriculture, and then the

1 motions. And then you see a dark blue curve or dark
2 blue line with an upper shaded line. What that
3 represents is lower case estimates for sequestration
4 potential, and then the upper part of the bar would
5 represent the highest potential.

6 What you see from this is that
7 sequestration can potentially deal with greenhouse
8 gas emissions at least a century if not centuries and
9 that is one reason why sequestration gets such hoopla
10 with the magnitude of emissions that we're talking
11 about.

12 The next chart shows is an analysis
13 that we performed looking at possible stabilization
14 scenarios in the United States. What this shows is
15 an example of stabilizing -- just hypothetically if
16 we were to look at stabilizing greenhouse gases
17 emissions in the United States 2002 level. What
18 would be the various levels and options that we would
19 have to deal with that? This shows we've looked at
20 efficiency renewables, forestation and agricultural,
21 non-CO2 gases, methane emissions, and a couple
22 sequestration options.

23 So, the message to take away from this
24 slide is all options are required. These are huge
25 magnitudes of emissions we're dealing with. It also

shows that in this scenario and in most scenarios being analyzed, sequestration will likely have to bear the bulk of the role for the reduction. This analysis shows close to 60 percent or more would be required from sequestration contribution.

Another point I want to make is to emphasize the magnitude of these emissions. Don't be concerned with the units. A large power plant would be about five. A large coal fire power plant would be about five. There's this 1700 gap that we would have to deal with.

Some of the requirements for sequestration. Obvious ones, it has to be environmentally acceptable. Most of our R&D is headed toward trying to satisfy these requirements. We want to make sure there's no legacy for future generations and help ecosystems. We want to show that it's safe. No sign of discharges and even with small discharges, monitor them, find them, mitigate them. We also want to show that we can verify that wherever we put this CO2 carbon, whether it be an underground formation or planting a tree, we want to make sure we can verify it for sustained periods of time.

Lastly, we'll look at the various

1 technology available to the United States and world
2 alliance. Give you a sense of sequestration research
3 within the Department of Energy. At the highest
4 level, the supplemental block shows something called
5 the Climate Change Technology Office. That's an
6 office within the DOE that all the functions are
7 related to climate change and sequestration.

8 The lower right-hand side log shows
9 activity done in the Office of Science, which is more
10 basic fundamental research. The lower left-hand is
11 the Office of Fossil Energy where this program is
12 managed and administered, carbon sequestration. The
13 reason that this program is coming forward with the
14 programmatic environmental impact statement, we're
15 really the group that's developing the technologies
16 that are more near-term application and near-term
17 deployment and, hence, we are (inaudible) basic parts
18 of the program.

19 This chart shows the agencies
20 conducting sequestration. It isn't just the
21 Department of Energy. Nearly all organizations in
22 the government in some way, shape, or form are
23 dealing with the issue of sequestration. Just to
24 provide two examples here, the upper right-hand side
25 shows the Environmental Protection Agency. They are

1 really the lead agency looking into the non-CO2
2 greenhouse gas. We work closely with them on that
3 effort. The lower left-hand corner shows the United
4 States Department of Agriculture. They are looking
5 at sequestration by increasing uptake in natural
6 systems. We also work closely with them. From the
7 sequestration program standpoint, we're focusing
8 primarily on abandoned mine lands, deforestation, and
9 potential use related to those lands.

10 This schematic gives you a very
11 high-level look at the carbon sequestration program.
12 The left-hand large bubble shows a program providing
13 five areas -- capture of CO2, primarily from these
14 large energy facilities; sequestration where we're
15 looking at the various sequestration options;
16 break-through concepts where we're looking at
17 revolutionary possibilities to deal with this issue;
18 fugitive methane emission; and measuring and
19 verification of where we put it and ensure it's
20 permanent and safe. We also have another primary
21 initiative, as well, infrastructure, which is our
22 regional partnerships that I'll discuss in the next
23 slide. The other is large-scale test facility,
24 looking at testing the commercial skills which right
25 now we're calling future.

Just to give you a sense of our program, right now we're a 40 million-dollar program. We net roughly 40 million a year. We have roughly 80 projects in the portfolio divided up amongst these areas. Give you some input into our regional carbon sequestration partnerships. There are several partnerships established in five geographic regions. You do have two partnerships that cover this area, and we do have a representative here from the Texas Department of Geology who is a representative in supporting both of these regional partnerships.

What are the partnerships to do? The partnerships will be developing the infrastructure. If we had economical technologies today with many of the issues we saw, the infrastructure just isn't there. Some of the issues they are focusing on are base-lining regions for sources. From a sink standpoint, we have large maps that will show you where all these geologic possibilities are, but much of that capacity is unproven. We also need to address the regulatory environmental issues. If we had these technologies in place tomorrow, we would not know how to deal with those issues. We also need to establish verification protocol. One thing in our program to develop technologies is not only a

1 reservoir with CO₂, but to look at the health of a
2 tree, measure carbon soil. It's another thing to
3 determine how long you have to take that snapshot,
4 how often you need to look at and ensure the health
5 of a patch of trees. These are the issues we're
6 looking for these partnerships to help us deal with.

7 The last thing I want to point out is
8 benefits of the sequestration. What benefits for the
9 Houston region? This region has a lot of
10 potential benefits in terms of using CO₂ to enhance
11 oil production, gas production, or mine coal seeps.
12 Other regions can even look at CO₂, for example, to
13 produce this saline saltwater and clean that water up
14 for use on the surface, whether it be drinking water,
15 irrigation, et cetera. So, there's numerous options
16 that exist within the regions that could potentially
17 benefit from the sequestration concept.

18 The last initiative I wanted to
19 discuss is this large-scale test facility that we're
20 looking at. What this would involve is essentially
21 building a large coal fire power plant that could
22 produce electricity, hydrogen, or a combination of
23 both and then do a geologic sequestration of the CO₂
24 from this plant. It's a 1-billion-dollar initiative
25 at the Department of Energy. We want this plant to

1 use the latest, greatest technologies emerging from
2 the R&D pipeline which should allow (inaudible). We
3 want to have permanent sequestration of CO₂ at about
4 a million mega tons of CO₂ per year and to verify its
5 permanence in sequestration.

6 To end this presentation, what I would
7 like to do is point you to several sources of
8 information. In addition to some of the people here,
9 there's also good, useful information sources. We
10 also rigorously maintain a website. The website
11 information is -- not only can you find very detailed
12 information on our program, you can also find contact
13 points. Please feel free to call those contact
14 points at any time for any information.

15 The last source of information I want
16 to point you to is we do provide a free of charge
17 electronic carbon sequestration newsletter that comes
18 out roughly monthly. All that's required is if you
19 have an e-mail address you can get this free of
20 charge. You can submit that to us electronically,
21 and we'll automatically put you on the list. That
22 provides monthly highlights from both U.S. and the
23 world in the area of carbon sequestration.

24 At this point, I would like to end my
25 presentation and turn the meeting back over to Lloyd

and start the comment session.

2 MR. LORENZI: We have two people who
3 have requested to speak tonight. We will take their
4 comments and any others desiring to make comments, we
5 will provide them the opportunity to do so. We have
6 so few commenters that we won't restrict the time
7 limit. Just keep it reasonable. We initially
8 thought that we would have a time of five minutes,
9 but that was based on having a larger list of
10 comments.

11 For the record, we ask you to use the
12 microphone, speak clearly, spell -- state and spell
13 your name for the benefit of the court reporter. And
14 if you're making comments on behalf of an
15 organization, please indicate the organization or
16 affiliation. The first commenter is Susan Hovorka.

17 MS. HOVORKA: Hi. I'm Susan Hovorka,
18 H-O-V-O-R-K-A. I'm a research scientist at the
19 Bureau of Economic Geology at the University of Texas
20 at Austin. And, first of all, I would like to
21 commend you on the effort to take a proactive stance
22 to investigating options for producing carbon
23 emissions. I would also like to welcome you to the
24 Gulf Coast. You'll notice this region has unique
25 aspects. And as part of those unique aspects, the

1 potential risks for a business' usual approach to
2 atmospheric release of carbon dioxide are
3 significant. Some of these risks are relative sea
4 level loss, increased storm severity, flooding. And
5 we already are very aware of these risks. Increased
6 risk of tropicalization are significant because it's
7 already warm.

8 Other negative effects are combustion
9 of the atmosphere in our summer heat such as
10 ground-level ozone and increase the awareness of the
11 negative effects of combustion in this region in
12 particular. The Gulf Coast is also deeply invested
13 in the energy drive for fossil fuels. The Gulf Coast
14 is a major oil and gas producing region and also a
15 significant area of lignite production. We have a
16 large and growing population that consumes oil, gas,
17 and coal for electricity and transportation. We also
18 have a unique, high concentration of heavy industries
19 along the Gulf Coast. These are major both
20 processors of fuel and consumers of energy for
21 manufacturing.

22 I would like to talk a little bit
23 about the options for reducing emissions through
24 geologic sequestration. My reason for choosing this
25 topic is not to downgrade any of the others but

1 because I know something about geologic
2 sequestration. I would like to make a significant
3 comment about it.

4 The Gulf Coast region has very high
5 potential for geologic sequestration of carbon
6 dioxide. The subsurface contains thick sandstones
7 with the capacity to contain very large volumes of
8 CO2. Numerous thick regional extensive shales form
9 the seals that retains the CO2 in the subsurface.
10 The characteristics of the subsurface are
11 exceptionally well-known because of decades of
12 exploration for oil and gas. We also know a lot
13 about the subsurface and its capacity to retain
14 fluids through underground injection, which is widely
15 used in this region as a method to dispose of wastes
16 that are unwanted at the surface. In addition to
17 pure sequestration, this region has excellent
18 opportunities for beneficial use of CO2 in the
19 subsurface through using carbon dioxide to enhance
20 oil production as one element of the sequestration
21 process.

22 The DOE has already made a strong
23 start towards assessing the risks and benefits of
24 this process. It's very important that this
25 assessment continues. Our past experience in

research has indicated that the subsurface in the Gulf Coast region is capable of storing large volumes of CO₂ and that these can be stored for long enough periods to benefit the atmosphere. The risks to health and safety and to the environment resulting from geologic sequestration that haven't been impacted so far as identified are manageable. However, we continue assessment to demonstrate the validity of what I just said.

I would like to mention just a couple of examples of the kind of things that we have to understand clearly to proceed ahead. These are from my own research experience. These are not really off-the-cuff comments but something I have been thinking about for a number of years. We don't have a reliable method to dating the footprint and the concentration of CO₂ in the complex subsurface environment, and this is something we need to be able to tell -- to know before we -- before we can do it because we have to say, "This is where it's going to go, and this is how it's going to behave." We need methods to determine the CO₂ will be retained in the injection interval for long enough periods to have the benefit that we want for the atmosphere, and the detection of these small rates of leakage of CO₂ from

1 the zone are still technically difficult. We don't
2 have a method for measuring it, and it's not an easy
3 or simple technical fix. We need to spend a good
4 deal more effort on this.

5 The potential to inject very large
6 volumes that are necessary to impact the atmosphere
7 might have other risks that are -- because of the
8 very large volumes. One is we might displace brine
9 and impair the quality of the potable water. So, we
10 need to consider the scale.

11 And the last scale-off effect is we
12 should consider the effect of injecting very large
13 volumes on earth mechanics on raising the land
14 surface or reducing stresses. I think this part we
15 still don't have a high enough level of confidence to
16 pursue that. Thank you.

17 MR. LORENZI: Thank you for your
18 comments. Do you by any chance -- I want to ask you
19 a technical question.

20 Do you have written comments that
21 you'll be submitting?

22 MS. HOVORKA: I just read them. I can
23 certainly send them written. I'll be glad to give
24 you whatever length you-all want on this.

25 MR. LORENZI: Thank you very much.

Second person to register is Brandt Mannchen.

MR. MANNCHE: My name is Brandt Mannchen, B-R-A-N-D-T, M-A-N-N-C-H-E-N, and I'm representing the Houston Sierra Club. We will be submitting comments in writing by the June 25th deadline, but these are just some preliminary thoughts.

One thing we're particularly interested in as a way to sequester carbon would be land acquisition. In the Federal Register it talked about besides the main benefit of sequestering carbon dioxide what other benefits. We can think of numerous side benefits as far as protecting biologically, ecologically important areas.

In the presentation, Scott talked about re-forestation. We would like to suggest you also focus on not having aforestation. In other words, existing important areas that are forested should at all possible remain that way from the standpoint of when those areas are developed, the release of carbon is very high. And it seems to me in order not to make the situation worse, you want to as much as possible to try and keep those areas from being aforested. And it seems also that in order to get the biggest bang for the buck, you should look at

1 areas that already have been protected and that could
2 use the initial buffer protection as high-quality
3 land for these other purposes, as well as carbon
4 sinks. So, I would like for a focus also on that and
5 those additional benefits, which could be very large
6 in this particular area.

7 I'm thinking primarily of three areas.
8 The Fish and Wildlife Service down in Brazoria County
9 and adjacent counties has a program to develop and
10 make national wildlife refuge -- it's called Columbia
11 Bottomlands or Austin's Woods. It protects a unique
12 and, in many ways, very mature and older forest from
13 being developed, and I can see that as being one area
14 where if you went in to preventing aforestation that
15 might be a good area.

16 The second area is the Big Thicket
17 National Preserve, and the third area is just
18 50 miles north of Houston in the Sam Houston National
19 Forest. There's a lot of opportunities to acquire
20 buffering lands. This would also protect clean
21 water, and we'll put that in our comments. It's a
22 thought to think about. I would like to see that
23 focus more than a focus on some of the papers I've
24 seen where people are talking about plantations. We
25 have this vigorously-growing young trees that are

1 scooping up all the CO2. In addition, we have these
2 mature forests that are just sinking all the CO2.

3 So, I hope the focus will be more on
4 the older forests than on, you know, helping
5 Louisiana Pacific grow more pine plantations. That's
6 about as graphic as I can get.

7 I've also read -- and I don't know as
8 much about the -- the topic, but I've heard that just
9 planting trees just ain't going to get us anywhere.
10 You can plant lots of trees, but you just can't plant
11 enough to really get to that point of really helping
12 significantly. Preventing aforestation will help the
13 situation.

14 It seems like this program assumes
15 that we're continue in the present situation. And I
16 realize you guys have a direction you've got to go
17 in, but to me that's a big flaw assumption. If we
18 could take from that pie, what is it, 40 percent of
19 our energy presently comes from oil? It we could
20 reduce that 5 or 10 percent and use something that's
21 a lot less carbon dioxide generating, seems to me we
22 would be doing the same thing as playing with
23 sequestering.

24 So, I want to urge you as much as you
25 can within the constraints of your program to think

1 about, you know, if we put all -- we're putting all
2 this into fossil fuels. Suppose we took all this
3 money and put it into some of those other
4 alternatives, you know, that have very little CO2 and
5 got us off more coal. Maybe that would get us
6 farther down the road as far as not making the
7 situation worse and also not having so much to
8 sequester. It's just a thought.

9 I don't know if this is -- makes
10 sense, but if you take CO2 and you add a little
11 hydrogen, you get carbonic acid, a slightly acid
12 material. I don't know if taking all that CO2 and
13 pushing it down into our groundwater is going to do
14 anything to change the pH content, but I think it's
15 worth looking into.

16 I like the idea of no legacy for
17 future generations. I think you should focus on that
18 heavily, that whatever we do makes it at least no
19 worse than what we've got because we're already
20 handing a huge problem to our children and
21 grandchildren. Whatever we can do to make it better
22 is obviously good.

23 Yes, I definitely agree with your idea
24 about need to verify. What I'm concerned about is if
25 you don't monitor well, being able to say, "This much

1 now and two years later this much," and everything
2 and make sure that we're not losing that capability,
3 talking about sequestering, we could be giving, for
4 instance, industry credit that, in fact, they don't
5 deserve or if we have poor methodologies in
6 calculating how much they should do to get a carbon
7 credit or something like that, we could be giving
8 them carbon credits when we really shouldn't be.

9 So, we have to be real careful. I
10 assume we're talking eventually caps and emission
11 trading. I don't particularly like those myself, but
12 I assume we're talking about that. A lot of times
13 what I see in the Houston area when we talk about our
14 ozone situation, they have similar things. We have
15 such poor technology telling us what's actually in
16 the air that we can't even really say that these caps
17 are going to do the job. So, I think it's really
18 crucial that we somehow figure out what really is
19 coming out or going in and really staying in or
20 leaking out.

21 When you mentioned health of a tree
22 and how often a forester came out, it gave me kind of
23 the willies from an ecological perspective because a
24 lot of forests, they grow and they die and they grow
25 and they die and that's very natural and that's okay.

1 What I don't want to have is someone come out and
2 say, "Golly gee, you know, they are looking a little
3 decadent. Let's cut them down and grow those frisky,
4 young trees so we can absorb more carbon." I get a
5 little worried about that healthy forest thing. So,
6 I want to throw that out there because that can be
7 misused to destroy or afforest things you shouldn't
8 be cutting down and making the situation worse.

9 I'm also concerned that the focus
10 seems to be on coal. And no offense to DOE, but coal
11 is about as dirty a fuel as you can ever use.
12 Whatever we can do to get away from coal seems to be
13 appropriate. If you're going to focus our effort of
14 a billions dollars showing how we can make coal
15 clean, we're going to encourage the use of coal and
16 I'm not so sure that we're going to make coal that
17 clean. I'm wondering if that's the best thing to do.

18 And, finally, the last thing -- this
19 is the key question. What is best for the public?
20 You know, obviously the oil and gas industry can tell
21 you what's best for them, but that isn't necessarily
22 what's best for the public. I want to encourage
23 DOE -- because it is a part of the federal government
24 and because it's the public's money and part of the
25 public's government and is supposed to be working for

1 the public -- but most in your mind should be is this
2 really best for the public or am I basically allowing
3 this special interest -- in my opinion, special
4 interest is industry -- to direct or generate the
5 program for its best interest, which may not be the
6 best interest of the public at large. That's a very
7 important tenant to keep in mind.

8 At any rate, we're going to submit
9 written comments and we appreciate this opportunity
10 to comment. Thank you.

11 MR. LORENZI: Thanks for your
12 comments. I would like to just ask one question. Do
13 you actually know what's going on with the forest
14 service which -- that's not a federal agency. They
15 may have their own -- when they manage a forest, they
16 have to go through this process ever so many years --
17 I don't know what their cycle would be for any
18 particular national forest.

19 Are you suggesting that the Department
20 of Energy somehow should try to work with those other
21 federal agencies that do those kind of functions, or
22 are you just throwing out something so that those
23 other federal agencies may focus on those functions
24 themselves?

25 MR. MANNCHEN: I'll give you an

1 example. I'll give you a name. Mike Lane works with
2 the U.S. Fish and Wildlife Service. He's the person
3 who's working on the Columbia Bottomlands down in
4 Brazoria, Fort Bend, and Wharton Counties. He
5 actually has had a consultant do an estimate of the
6 forest -- some of the forests that they have acquired
7 and what carbon stores they have, which I think is a
8 very farsighted thing for him to do because he's been
9 looking at carbon sequestration saying, "This really
10 happens. There may be some benefit here for the
11 refuge as far as assisting us."

12 So, what I'm suggesting is that you
13 may be able to kill two birds with one stone. You
14 may be able to do something with carbon sequestration
15 and not deforesting an area and also have a public
16 land base that is good for the public and good for
17 wildlife and other things, too, depending on what the
18 land base is. The land base might be fish and
19 wildlife, might be the forest service, might be the
20 ELM, might even be the military service because they
21 have a lot of forested public lands, like out in
22 Florida.

23 So, it can take all different kinds of
24 partnerships, as everybody loves to use that term
25 nowadays. And so, I would certainly encourage DOE

1 that since you mention a -- basically land that is
2 improved in its capacity to sequester carbon or sort
3 of kind of started from the ground level and brought
4 back up as one of the four areas or technologies or
5 whatever that you want to look at, you have these
6 other agencies that also have goals that somewhat
7 might fit in with what you're talking about for that
8 specific way to sequester carbon.

9 And so, you may want to -- if you
10 don't already -- be interacting with them in some
11 sort of a task force or however you-all do it to see
12 if something can work out. If it does work out, it
13 seems to me that would provide a lot of additional
14 benefits for the public and the public would be very
15 appreciative of that.

16 MR. LORENZI: I just wanted to get on
17 the record your view of our -- the Department of
18 Energy relationship with these other --

19 MR. MANNCHEN: It can also be local or
20 state agencies, for that matter. Anybody who for
21 whatever reason has a land base or is protecting a
22 land base. I don't know. I'm sure it's thousands of
23 entities.

24 MR. LORENZI: Thank you. I work for
25 the Department of Energy, and I will not defend the

1 Department of Energy's activities because those
2 activities flow down from the top. The Department
3 does have a program in efficiency improvements, usage
4 renewables, and we or Scott or the Fossil Energy
5 Office doesn't view his organization as competing
6 with those other Department of Energy functions.
7 It's a matter of doing what we have to do at the
8 present time, recognizing in the future things are
9 going to look a lot different than they are today.
10 Just so you know, the Department of Energy does not
11 ignore things like renewables and efficiency and use
12 of carbon.

13 MR. MANNCHEN: Sure. I appreciate
14 that. It's just I think we can all agree that we can
15 do more. We have it. We're just putting it in the
16 wrong place.

17 MR. LORENZI: That's off the record.
18 Are there any others with comments to make? This is
19 your opportunity to do so, at least at this point.
20 If not, I'll just remind everyone that June 25th is
21 the cut-off date for comments. You may submit
22 written comments. You might take some of the
23 information that's out on the site that does provide
24 details on the persons for submitting comments
25 following the meeting, as well as technical points of

contact if you have technical questions.

2 It's a small crowd. How much can I
3 encourage you? I'm sorry for that, but this -- we're
4 looking for the public to participate in these
5 government functions. And so, I would encourage you
6 to take the opportunity whenever it's presented.
7 When we come back here with a draft EIS, I would
8 encourage you-all to do that. Keep aware of the
9 status of our activities and come back at that time
10 and provide feedback on the exact EIS.

11 With that final comment, I will wish
12 you-all safe travel home. Thank you all for your
13 participation, and at 7:50 or so we'll call the
14 meeting to a close.

15 (Whereupon the meeting was adjourned.)
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STATE OF TEXAS

COUNTY OF HARRIS

REPORTER'S CERTIFICATE
PUBLIC MEETING
MAY 25, 2004

I, the undersigned Certified Shorthand Reporter in and for the State of Texas, certify that the facts stated in the foregoing pages are true and correct to the best of my ability.

I further certify that I am neither attorney or counsel for, related to, nor employed by any parties to the action in which this testimony is taken and, further, that I am not a relative or employee of any counsel employed by the parties hereto or financially interested in the action.

SUBSCRIBED AND SWORN TO under my hand and seal of office on this the *27th* day of *May*, *2004*.

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Texas CSR 3786

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